Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Flexibility for Delivery of Communications by	)	
Mobile Satellite Service Providers in the 2 GHz	)	IB Docket No. 01-185
Band, the L Band, and the 1.6/2.4 GHz Bands	)	

OPPOSITION OF MOBILE SATELLITE VENTURES SUBSIDIARY LLC TO PETITION FOR PARTIAL RECONSIDERATION AND CLARIFICATION OF INMARSAT VENTURES LTD

Mobile Satellite Ventures Subsidiary LLC ("MSV") hereby files this Opposition to the Petition for Partial Reconsideration and Clarification filed by Inmarsat Ventures Ltd ("Inmarsat") of the Commission's *Memorandum Opinion and Order and Second Order on Reconsideration* in the above-captioned proceeding.[1] As discussed herein, MSV urges the Commission to (i) deny Inmarsat's request to eliminate the "per 200 kHz" reference bandwidth specification for base station power levels because such a specification is appropriate, fully consistent with power levels for base stations of other services, and will not cause any additional interference to Inmarsat; (ii) consider adopting an appropriate reference distance for calculating the signal level threshold used to determine when notification of base station operations must occur, provided the Commission also clarifies that such notification is merely a trigger for coordination discussions and does not obligate an operator to reduce base station power or modify frequencies without further conclusive evidence provided by the potential victim of interference; and (iii) deny as unnecessary Inmarsat's request to limit the number of simultaneously transmitting Ancillary Terrestrial Component ("ATC") mobile terminals. MSV

[1] Inmarsat Ventures Ltd, Petition for Partial Reconsideration and Clarification, IB Docket No. 01-185 (May 13, 2005) ("*Inmarsat Petition*"); *see Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L Band, and the 1.6/2.4 GHz Bands, Memorandum Opinion and Order and Second Order on Reconsideration*, FCC 05-30 (February 25, 2005) ("*2nd ATC Reconsideration Order*").

urges the Commission to act on Inmarsat's Petition as expeditiously as possible to provide MSV with the critical regulatory certainty needed to fulfill the Commission's vision in authorizing ATC.

Background

On February 25, 2005, the Commission released the *2nd ATC Reconsideration Order,* substantially revising its technical rules for operation of ATC in the L Band. The Commission's decision affords Mobile Satellite Service ("MSS") operators in the L Band considerable technical flexibility to deploy a robust ATC network. MSV applauds the Commission's decision as striking the proper balance between promoting flexible, efficient use of spectrum while protecting incumbent spectrum users from harmful interference.

In the downlink direction, the Commission permitted an increase in the power level of L Band ATC base stations based on five independent findings: (i) Inmarsat Mobile Earth Terminals ("METs") are unlikely to be used in urban areas where ATC base stations will be located (*2nd ATC Reconsideration Order* ¶ 56); (ii) Inmarsat METs are less susceptible to interference than assumed in the February 2003 *ATC Order* (*id.* ¶ 55); (iii) Inmarsat can deploy METs in the future that are more resistant to interference (*id.*); (iv) the prospect that a new coordination agreement would result in more contiguous blocks of spectrum (*id.* ¶ 59); and (v) Inmarsat can operate METs in the 1541.5-1547.5 MHz frequency band where ATC base stations are subject to stricter power limits (*id.* ¶ 57). The new rule permits ATC base stations to transmit a peak EIRP of 31.9 -10*log(number of carriers) dBW/200kHz, per sector, for each carrier in the 1525-1541.5 MHz and 1547.5- 1559 MHz bands. *See* 47 C.F.R. § 25.253(d)(1). While the Commission found that Inmarsat METs could be subject to intermodulation interference in certain cases, the Commission adopted a notification and coordination procedure to mitigate this interference potential. *See* 47 C.F.R. § 25.253(h). An L Band MSS/ATC operator must notify

another L Band MSS operator if any ATC base station can produce third-order intermodulation products in the frequencies assigned to the other L Band MSS operator. *Id.* The threshold for this notification is when the sum of the calculated signal levels from the ATC base stations received by an MSS MET exceeds -70 dBm. *Id.* In calculating this signal level, the Commission stated that the following assumptions may be made: (i) the MSS MET is at ground level; (ii) actual signal polarizations for the ATC and MSS signals apply; (iii) the MSS MET has an omni-directional antenna; and (iv) free-space loss characterizes the propagation environment between the base station and the MSS terminal. *See 2nd ATC Reconsideration Order* ¶ 59 n.135. Upon notification, the potentially impacted MSS operator may request coordination. The Commission explains that the MSS/ATC operator and the potentially impacted MSS operator "must work together" to resolve any interference. *Id.* ¶ 59. The Commission notes that the potential for intermodulation interference may be avoided through careful selection of base station frequencies or by aggregating the channels used by the different MSS operators. *See 2nd ATC Reconsideration Order* ¶ 59.

In the uplink direction, the Commission allowed L Band MSS operators to substantially increase terrestrial reuse of their frequencies from that authorized in the February 2003 *ATC Order*. The Commission specified the following overall limitation on the amount of uplink interference an MSS/ATC system can cause to another MSS system in the L Band: (i) on L Band frequencies that are not shared within the visible arc as seen from the ATC coverage area, the MSS/ATC operator is limited only by in-band and out-of-band emission limits and the need to control self-interference sufficiently to maintain substantial satellite service; and (ii) on L Band frequencies that are shared with another MSS operator, the MSS/ATC operator is permitted to cause interference from its entire network to the other MSS operator up to a level that is 1%

ΔT/T more than what has been coordinated by the operators for sharing by their satellite systems. *See 2nd ATC Reconsideration Order* ¶ 46. Based on its decision to establish an overall uplink interference limit, the Commission eliminated many of its specific technical restrictions on ATC in the L Band, such as the limit on the number of base stations and the number of simultaneously transmitting ATC mobile terminals. *Id.* ¶ 50.

Inmarsat was the only party to file for reconsideration of the *2nd ATC Reconsideration Order*. Inmarsat commends the Commission's decision for protecting MSS operators from interference, but raises three narrow technical issues. *Inmarsat Petition* at 1. First, Inmarsat asks the Commission to eliminate the "per 200 kHz" reference bandwidth specification for base station power levels. *Id.* at 2-7.[2] Inmarsat contends that the "per 200 kHz" reference bandwidth is appropriate only for a GSM-based ATC network which uses 200 kHz wide carriers. *Id.* at 5. Inmarsat claims that ATC base stations using wider carrier bandwidths than GSM will be able to transmit at a higher power than a GSM-based ATC base station. *Id.* at 4-5. For example, Inmarsat calculates that the Equivalent Isotropically Radiated Power ("EIRP") of an ATC base station using a cdma2000 air interface protocol, with a 1250 kHz carrier bandwidth, will be 8 dB higher than a GSM-based ATC base station. *Id.* Inmarsat claims that this increase in power will increase the potential for interference to MSS terminals near the ATC base station. *Id.* at 5.

Second, Inmarsat asks the Commission to specify a reference distance between an ATC base station and an MSS MET in calculating the -70 dBm signal threshold triggering the base station notification requirement. *Inmarsat Petition* at 8-9. Inmarsat suggests a reference distance of 100 meters, citing its previous recommendation during the initial ATC rulemaking proceeding. *Inmarsat Petition* at 8 n.15; *see ATC Order* ¶ 149.

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[2] *See* 47 C.F.R. §§ 25.253(d)(1)-(7).

Third, Inmarsat asks the Commission to adopt a limit on the number of simultaneously transmitting ATC mobile terminals to protect its Inmarsat-4 satellite receivers from interference. *Inmarsat Petition* at 9. Inmarsat claims that aggregate emissions from a large number of simultaneously transmitting ATC mobile terminals will overload the analog-to-digital converters on its Inmarsat-4 satellites. *Id.* Inmarsat also asks the Commission to impose monitoring and reporting requirements on MSS/ATC operators regarding peak traffic so that potentially impacted MSS operators can monitor the potential for overload. *Id.* ¶ 11.

Discussion

I. The "Per 200 kHz" Reference Bandwidth Specification for Base Station Power Levels Should Be Maintained

Despite Inmarsat's request, the Commission should retain the "per 200 kHz" reference bandwidth specification for base station power levels. As an initial matter, MSV notes that Inmarsat does not dispute that the "per 200 kHz" reference bandwidth is appropriate for an ATC network using a GSM air interface protocol. Inmarsat's only claim is that the "per 200 kHz" reference bandwidth results in higher base station power levels for systems using protocols with a carrier bandwidth in excess of 200 kHz, such as CDMA. In fact, as discussed in the attached Technical Appendix, even for protocols with a carrier bandwidth in excess of 200 kHz, the power level of L Band ATC base stations is entirely consistent with the power level of base stations of other wireless services, including Personal Communications Services ("PCS") and Big LEO ATC base stations.[3] The Commission's rules for L Band ATC base stations ensures

[3] *See* 47 C.F.R. § 24.232(a) (PCS base stations "are limited to 1640 watts peak equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT"); 47 C.F.R. § 25.254(a)(1) (specifying that Big LEO ATC base station shall "not exceed a peak EIRP of 32 dBW in 1.25 MHz"); 47 C.F.R. § 27.50(a) (2.3 GHz WCS bases stations are limited to "2000 watts peak equivalent isotropically radiated power (EIRP)"); 47 C.F.R. § 27.50(d) (Advanced Wireless Services base stations in the 2110-2155 MHz band are limited to a "peak EIRP of 1640

that L Band MSS/ATC operators will be able to deploy base stations in a cost-effective manner consistent with architectures used by terrestrial wireless carriers. Any lesser power means that L Band MSS/ATC operators would be required to deploy non-standard, costlier architectures and more base stations than wireless carriers to cover the same area.

While Inmarsat claims that a "per 200 kHz" reference bandwidth specification will result in increased interference to its METs, its concerns are unfounded. As the Commission held in the *2nd ATC Reconsideration Order*, there are many reasons why Inmarsat METs are not likely to be subject to interference from ATC base stations. *See supra,* p. 2. Inmarsat offers no evidence to rebut these Commission findings. Moreover, since adoption of the *2nd ATC Reconsideration Order*, Inmarsat has announced that it will also seek to deploy ATC, which further reduces the likelihood that an Inmarsat customer in a densely-populated area will be adversely affected by MSV's ATC operations.[4] Thus, the 8 dB increase in base station power that Inmarsat calculates will have no real-world impact on Inmarsat METs. Nonetheless, as an additional safety valve to ensure Inmarsat METs are protected from interference, the Commission could require an L Band MSS/ATC operator to notify a potentially impacted MSS operator of any ATC base station using a protocol with a carrier bandwidth in excess of 200 kHz that will exceed an EIRP or power flux density ("PFD") of a baseline GSM-based base station. To the extent a potentially impacted MSS operator can demonstrate that (i) its METs are used continuously within the vicinity of the subject base station; and (ii) the METs suffer actual harmful interference from operation of the subject base station, then the parties will be required to coordinate to mitigate the potential for interference.

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watts"); 47 C.F.R. § 27.50(f) (base stations in the 1670-1675 MHz band are limited to "2000 watts EIRP peak power").

[4] *See Press Release, Inmarsat to Seek ATC Licence* (February 15, 2005) (available at: http://about.inmarsat.com/news/00015672.aspx?language=EN&textonly=False).

II. A Reference Distance May Be Appropriate For Calculating the Signal Level Threshold Used to Determine When Notification of Base Station Operations Is Required, Provided the Commission Clarifies that Notification Is Merely a Trigger for Coordination Discussions

MSV does not object to the specification of an appropriate reference distance for calculating the signal level threshold used to determine when notification of base station operations must occur, provided the Commission also clarifies that such notification is merely a trigger for coordination discussions and does not obligate an operator to reduce base station EIRP without further conclusive evidence provided by the potential victim of interference.[5] MSV opposes the use of 100 meters as a reference distance for use in calculating the signal level threshold. Inmarsat has never offered any evidence that its METs are likely to be used within 100 meters of an ATC base station. Moreover, the Commission has never stated or implied that it is reasonable to expect that Inmarsat METs will be used within 100 meters of an ATC base station. Indeed, given the Commission's unchallenged conclusion that Inmarsat METs are unlikely to be used in urban areas where ATC base stations will be located -- let alone within 100 meters of an ATC base station -- the appropriate reference distance for calculating the signal level threshold should not be less than 600 meters.[6] Any lesser distance would be unnecessarily burdensome on MSS operators deploying ATC base stations. Moreover, a reference distance of 600 meters represents a very small percentage (9%) of the overall service area of an ATC base station inside of which a satellite MET may be impacted by intermodulation interference.[7] As

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[5] Inmarsat agrees with this position, stating that Section 25.253(h) "does not impose an absolute constraint on the operation of an ATC base station." *Inmarsat Petition* at 9.

[6] *2nd ATC Reconsideration Order* ¶ 56 ("[I]t is not clear that there will be great usage of Inmarsat MSS signals near urban areas where MSS ATC L Band transmitters will be deployed.").

[7] Subject to the EIRP increase provided by the *2nd ATC Reconsideration Order*, an ATC base station will have a service radius of ~2 km and a service area of $\sim\pi\ (2\ \text{km})^2 = 4\pi \times 10^6\ \text{m}^2$. As such, a radius of 600 meters from an ATC base station tower encompasses 9% of the ATC base station service area. Thus, subject to a 600 meter rule for calculating whether notification and

such, and given the Commission's finding that Inmarsat METs are not likely to operate in urban areas where ATC base stations will be deployed (*2nd ATC Reconsideration Order* ¶ 56), a reference distance of 600 meters is appropriate. If at 600 meters from ATC base stations the aggregate signal level at a satellite MET is less than -70 dBm, that satellite MET, given that it is operating within the service area of the ATC, will not be subject to intermodulation interference in 91% of the service area of the ATC. Therefore, the overall probability that the ATC will cause intermodulation interference to a satellite MET becomes negligible and significantly less than 0.09%.[8]

Whether or not the Commission adopts a reference distance for calculating the signal level threshold used to determine when notification of base station operations must occur, the Commission should make clear that notification is merely the first step in the coordination process. In its Order in this proceeding, the Commission should explain that once an L Band MSS operator deploying an ATC provides the required notification to a potentially impacted MSS operator, the burden shifts to the complaining MSS operator to demonstrate that (i) its METs are used continuously within the potentially impacted area (i.e., within the area beyond 600 meters from the ATC base station cell site where intermodulation interference may occur) and (ii) its METs will suffer actual harmful interference from operation of the subject ATC base

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potential coordination relative to a given base station is required, any residual potential for intermodulation interference would be limited to an area of no more than 9% of the total area over which ATC is deployed.

[8] Assuming an extreme worst case that a MET is as likely to operate in an urban area as it is everywhere else, and assuming that the area served by ATC base stations is 1% of the total geographic area of the United States, the probability of intermodulation interference is upper-bounded by: Pr[MET is in urban area]*Pr[MET is within 600 meters of an ATC base station] = 0.01*0.09 = 0.0009. Subject to a more realistic assumption consistent with the Commission's findings that satellite METs are unlikely to operate in populous areas where ATC base stations will be deployed, the probability of intermodulation interference becomes significantly smaller than 0.0009.

station. With respect to the later point, the Commission must make clear that there is no guarantee that an Inmarsat MET will suffer harmful interference simply because it is located within a potentially impacted area. Because the Commission has required MSS operators deploying an ATC to assume free-space loss in calculating the -70 dBm impacted area, rather than a more realistic propagation model for an urban environment, this area will be larger than the area in which actual harmful interference might occur.[9]

III. A Limit on the Number of Simultaneously Transmitting ATC Mobile Terminals Is Unnecessary

Inmarsat's request that the Commission adopt an "appropriate limit" on the number of simultaneously transmitting ATC mobile terminals and impose monitoring and report requirements is unnecessary. Inmarsat is wrong when it claims that it is at risk of interference from simultaneously transmitting ATC mobile terminals. As discussed in the attached Technical Appendix, aggregate emissions from MSV's current-generation satellite-only METs will have a greater impact on Inmarsat satellites than MSV's ATC mobile terminals. Thus, the interference impact to Inmarsat satellites will be reduced as MSV transitions from its current-generation METs in favor of MSS/ATC mobile terminals. Inmarsat's satellites are designed to withstand aggregate emissions from at least 1000 simultaneously transmitting current-generation MSV METs. This equates to an impact that far exceeds the impact of over 7.5 million simultaneously transmitting ATC mobile terminals. Assuming a 5% activity factor, 7.5 million simultaneously transmitting ATC mobile terminals equates to 150 million customers – about three times as many customers as the largest terrestrial wireless carrier. As such, any restriction on the number of simultaneously transmitting ATC mobile terminals would be unnecessary. To the extent MSV

[9] In the *ATC Order*, the Commission refused to assume free-space loss propagation between an ATC base station and an MSS receiver. *ATC Order* ¶ 151.

approaches this number of customers at some point in the future, the Commission can consider an appropriate limit on simultaneously transmitting ATC mobile terminals at that time.

MSV notes that the original requirement that MSV limit the number of simultaneously transmitting ATC mobile terminals to 90,000 was derived from an illustrative system design proposed by MSV over three years ago which was based on an assumed ATC-wide frequency reuse factor of 2000.[10] In the *2nd ATC Reconsideration Order*, the Commission specifically decided to eliminate any technical restrictions based on a specific system design, choosing instead to adopt an overall interference limit that "allows MSS/ATC licensees flexibility to design their ATC in accordance with technical and market demands."[11] Inmarsat offers no basis for the Commission to reinstate an over-specified technical limit in contravention of the core principal of technical flexibility underlying the *2nd ATC Reconsideration Order*.

Conclusion

MSV requests that the Commission act consistently with the views expressed herein.

Respectfully submitted,

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[10] *See ATC Order* ¶ 188; Letter from Mobile Satellite Ventures Subsidiary, LLC to Marlene Dortch, Secretary, FCC, IB Docket No. 01-185 (filed Jan. 11, 2002).

[11] *2nd ATC Reconsideration Order* ¶ 50 ("[W]e have little basis for limiting the number of base stations or mobile handsets, so we will eliminate these limits. The intent of these rules was to limit the total interference caused by ATC. These specific numerical limits were based on an analysis of MSV's proposed ATC. Many of the values proposed by MSV have changed. More importantly, we believe that it is important to allow MSS/ATC licensees flexibility to design their ATC in accordance with technical and market demands.").

Technical Appendix

I. The 200 kHz Reference Bandwidth is Appropriate for Specifying Base Station EIRP

The Commission's new rule specifies that ATC base stations may not "Exceed a peak EIRP of 31.9 -10*log(number of carriers) dBW/200kHz, per sector, for each carrier in the 1525-1541.5 MHz and 1547.5- 1559 MHz frequency bands." 47 C.F.R. § 25.253(d)(1). The new rule is appropriate because it allows base stations to accommodate technologies with carrier bandwidths wider than those of GSM-based systems and to radiate more power (commensurate with the wider carrier bandwidths) to thereby serve a larger number of users. As the bandwidth of a carrier increases, the number of users that can be served by the carrier also increases, thereby requiring more EIRP for the provision of service. For example, for a technology that is characterized by 1250 kHz carriers (as may be the case in a deployment of cdma2000 and/or OFDM/OFDMA/WiMAX, etc.), the EIRP limit per carrier, per sector, according to the new rule is 31.9 - 10log(No. of carriers/sector) + 10log(1250 kHz/200 kHz) dBW/carrier/sector. Even allowing the number of carriers per sector to be 6 (representing a very high capacity ATC base station site), the equation yields: 31.9 - 10log(6) + 10log(1.25/0.2) = 32 dBW/carrier/sector, which is consistent with, and no greater than, the current PCS base station EIRP limit.[1] Such flexibility is important for L-band ATC in order for the ATC to utilize standard PCS architectures (e.g., existing base station sites/towers), thereby minimizing deployment costs. This does not mean that every ATC base station will transmit at the maximum power level, but the flexibility to do so allows for optimization of system performance while minimizing system cost. The Commission, however, out of an abundance of caution, could require an L Band MSS operator deploying an ATC to notify a potentially impacted MSS operator of any ATC base station using a protocol with a carrier bandwidth in excess of 200 kHz that will exceed an EIRP or PFD of a baseline GSM-based base station. As such, a coordination process for protecting satellite MET operations near ATC base stations using broadband protocols could be established. The Commission should rely on such a process to resolve any real-world demonstrable interference concerns that may arise from deployment of broadband technologies in the ATC.

For several reasons acknowledged by the Commission, real-world demonstrable interference to Inmarsat METs from deployment of broadband technologies is unlikely. First, Inmarsat METs are unlikely to operate in cities and close to MSV's ATC base stations.[2] Second,

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[1] *See* 47 C.F.R. § 24.232(a) (PCS base stations "are limited to 1640 watts peak equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT"); 47 C.F.R. § 25.254(a)(1) (specifying that Big LEO ATC base station shall "not exceed a peak EIRP of 32 dBW in 1.25 MHz"); 47 C.F.R. § 27.50(a) (2.3 GHz WCS bases stations are limited to "2000 watts peak equivalent isotropically radiated power (EIRP)"); 47 C.F.R. § 27.50(d) (Advanced Wireless Services base stations in the 2110-2155 MHz band are limited to a "peak EIRP of 1640 watts"); 47 C.F.R. § 27.50(f) (base stations in the 1670-1675 MHz band are limited to "2000 watts EIRP peak power").

[2] *See Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L Band, and the 1.6/2.4 GHz Bands, Memorandum Opinion and Order and Second Order on Reconsideration*, FCC 05-30 (February 25, 2005) ("*2nd ATC Reconsideration*

Inmarsat can be expected to deploy receivers that are more resistant to interference.[3] Third, once Inmarsat deploys its own ATC, as Inmarsat has indicated it plans to do,[4] the potential for interference to Inmarsat METs will be further minimized because the METs can receive service in cities through Inmarsat's ATC base stations. Fourth, Inmarsat can coordinate greater spectrum contiguity with MSV to create large blocks of stable spectrum over which front-end filtering may be implemented, thereby reducing or eliminating the potential of MET overload/intermodulation interference from MSV's ATC base stations.[5] Finally, Inmarsat can operate its METs in the 1541.5-1547.5 MHz frequency band where ATC base stations are subject to stricter power limits.[6]

II. Impact of Aggregate Emissions from Simultaneously Transmitting ATC Mobile Terminals on an Inmarsat Satellite Receiver

L Band satellites are designed to accommodate the impact of legacy MSS Mobile Earth Terminals ("METs") of their own system and other systems. As such, Inmarsat satellites, and in particular, Inmarsat-4 satellites are designed to accommodate (conservatively) at least 1000 MSV legacy METs transmitting simultaneously, each at 16 dBW EIRP. Thus, an I-4 satellite receiver is designed to tolerate at least 10log(1000) + 16 dBW = 46 dBW of out-of-channel power without being overloaded.[7]

Now let us consider a GSM-based ATC that may potentially impact an Inmarsat-4 co-channel receiver by 6% ΔT/T, using ATC terminals that radiate a maximum of 0 dBW EIRP. Such a GSM-based ATC may deploy a frequency reuse of 14,787. Thus, for the postulated ATC network, and taking into account the interference mitigating factors of power control, outdoor blockage, polarization mismatch, and voice activity (which on average, reduce the effective

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Order"), at ¶ 56 ("Furthermore, it is not clear that there will be great usage of Inmarsat MSS signals near urban areas where MSS ATC L-band transmitters will be deployed. This is because: (i) MSS signals are often obstructed by buildings and the environment in general, and (ii) there are other more reliable and cheaper modes of communication that are more likely to be used (e.g., VHF air traffic control, VHF marine, CMRS communications, and landline).").

[3] *2nd ATC Reconsideration Order* ¶ 56 ("[W]e rely on the marketplace – manufacturers and service providers – to decide how much susceptibility to interference will be acceptable to consumers. In addition, we generally do not limit one party's ability to use the spectrum based on another party's choice regarding receiver susceptibility. In this situation, it is clear from our testing and our knowledge of receiver design that Inmarsat can deploy receivers in the future that can be less susceptible to interference from transmissions on nearby frequencies.").

[4] *See Press Release, Inmarsat to Seek ATC Licence* (February 15, 2005) (available at: http://about.inmarsat.com/news/00015672.aspx?language=EN&textonly=False).

[5] *See 2nd ATC Reconsideration Order* ¶ 59.

[6] *Id.* ¶ 57.

[7] This is the level at the surface of the earth (before propagation losses to the satellite are taken into account).

aggregate EIRP level by at least 22.9 dB[8]), 10log(14,787) = 41.7 – 22.9 = 18.8 dBW EIRP may potentially be launched by such an ATC within a given 200 kHz band of frequencies. MSV has the ability to deploy up to 65 distinct GSM carriers thus potentially launching a theoretical effective 10log(65) + 18.8 = 36.9 dBW EIRP from earth. This is at least 9 dB lower relative to the level that an Inmarsat-4 satellite is designed to withstand. It is also consistent with the level of 37 dBW Inmarsat states it has allocated for interference from MSV's system.[9]

As ATC is deployed and MSV transitions from the present system to the next generation system, its legacy METs will be phased-out and replaced with METs of much reduced EIRP. Furthermore, it should be appreciated that the ATC postulated above is a very large ATC and able to support 7,689,240 simultaneous on-the-air conversations. Such an ATC will take many years (if ever) to be deployed.

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[8] As the Commission has concluded in the *ATC Order* (*see ATC Order* Appendix C2, for example, Table 2.1.1.C at 206).

[9] *See* Inmarsat *ex parte* presentation, IB Docket No. 01-185 (February 3, 2005).

TECHNICAL CERTIFICATION

I, Dr. Peter D. Karabinis, Vice President & Chief Technical Officer of Mobile Satellite Ventures Subsidiary LLC ("MSV"), certify under penalty of perjury that:

I am the technically qualified person with overall responsibility for preparation of the technical information contained in the foregoing "Opposition." The information contained in the "Opposition" is true and correct to the best of my belief.

Dr. Peter D. Karabinis
Vice President & Chief Technical Officer

August 4, 2005

CERTIFICATE OF SERVICE

I, Sylvia A. Davis, a secretary with the law firm of Pillsbury Winthrop Shaw Pittman LLP, hereby certify that on this 4th day of August 2005, served a true copy of the foregoing by first class United States mail, postage prepaid, upon the following:

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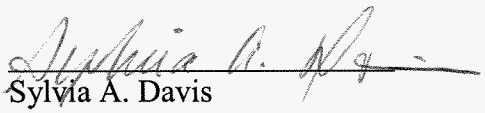

Sylvia A. Davis